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10/788,464	05/24/2004	Takeshi Sakamoto	118870	9230
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OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			WONG, EDNA	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/788,464

Applicant(s)

SAKAMOTO ET AL.

Examiner

Edna Wong

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>See "Other"</u> . | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> . |

Continuation of Attachment(s) 6). Other: March 1, 2004 and June 17, 2004.

Claim Objections

Claims 1-10, 12-16 and 18-22 are objected to because of the following informalities:

Claim 1

line 3, the word "forming" should be amended to the word -- electroplating --.

line 4, the words "through electroplating" should be deleted.

Claim 2

line 3, the words "the first plating bath including at least one kind" should be amended to the words -- the nickel source is --.

lines 5-6, the words "as the nickel source is used" should be deleted.

Claim 3

line 3, the words "the first plating bath including at least one kind" should be amended to the words -- the conductive salt is --.

lines 8-9, the words "as the conductive salt is used" should be deleted.

Claim 4

line 3, the words "the first plating bath including at least one kind" should be amended to the words -- the pH stabilizer is --.

line 6, the words "as the pH stabilizer is used" should be deleted.

Claim 5

line 3, the word "through" should be amended to the word -- by --.

Claim 6

line 1, the words "the second plating bath including at least one kind" should be amended to the words -- the nickel source is --.

lines 5-6, the words "as the nickel source is used" should be deleted.

Claim 7

line 3, the words "the second plating bath including at least one kind" should be amended to the words -- the conductive salt is --.

lines 8-9, the words "as the conductive salt is used" should be deleted.

Claim 8

line 3, the words "the second plating bath including at least one kind" should be amended to the words -- the pH stabilizer is --.

line 6, the words "as the pH stabilizer is used" should be deleted.

Claim 9

line 3, the word "forming" should be amended to the word -- electroplating --.

line 4, the words "through electroplating" should be deleted.

line 6, the word "kind" should be amended to the word -- ion --.

line 8, the word "kind" should be amended to the word -- ion --.

line 10, the word "kind" should be amended to the word -- ion --.

Claim 10

line 3, the word "through" should be amended to the word -- by --.

line 4, the word "kind" should be amended to the word -- ion --.

line 6, the word "kind" should be amended to the word -- ion --.

line 8, the word "kind" should be amended to the word -- ion --.

Claim 12

line 3, the word "through" should be amended to the word -- by --.

Claim 13

line 2, the word "as" should be deleted.

line 2, the words "at least one kind" should be amended to the word -- is --.

line 4, the words "is included" should be deleted.

Claim 14

line 2, the word "as" should be deleted.

line 2, the words "at least one kind" should be amended to the word -- is --.

line 7, the words "is included" should be deleted.

Claim 15

line 2, the word "as" should be deleted.

line 2, the words "at least one kind" should be amended to the word -- is --.

line 5, the words "is used" should be deleted.

Claim 16

line 3, the word "kind" should be amended to the word -- ion --.

line 6, the word "kind" should be amended to the word -- ion --.

line 9, the word "kind" should be amended to the word -- ion --.

Claim 18

line 4, the word "through" should be amended to the word -- by --.

Claim 19

line 2, the word "as" should be deleted.

line 2, the words "at least one kind" should be amended to the word -- is --.

line 4, the words "is included" should be deleted.

Claim 20

line 2, the word "as" should be deleted.

line 2, the words "at least one kind" should be amended to the word -- is --.

line 7, the words "is included" should be deleted.

Claim 21

line 2, the word "as" should be deleted.

line 2, the words "at least one kind" should be amended to the word -- is --.

line 5, the words "is used" should be deleted.

Claim 22

line 3, the word "kind" should be amended to the word -- ion --.

line 6, the word "kind" should be amended to the word -- ion --.

line 9, the word "kind" should be amended to the word -- ion --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

I. Claims 17-19 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 50-118930 ('930).

JP '930 teaches a plating bath, comprising:

- (a) a nickel source (= NiSO_4);
 - (b) a conductive salt (= NiCl_2);
 - (c) a pH stabilizer (= H_3BO_3); and
 - (d) an organic sulfur compound (= m-sulphobenzoic acid, 1,5-naphthalenedisulphonic acid Na salt or 1,4-diethoxy-2-butyne-sulphonate)
- [abstract],

wherein the conductivity of the plating bath is 80 mS/cm or over (*inherent*).

As the nickel source, at least one kind selected from the group consisting of nickel sulfate, nickel chlorides, nickel bromides, nickel acetate and nickel

pyrophosphate is included (= NiSO_4) [abstract].

As the pH stabilizer, at least one kind selected from the group consisting of boric acid, ammonium borate, sodium borate, potassium borate, lithium borate, magnesium borate and ammonia is used (= H_3BO_3) [abstract].

As to wherein the plating bath is used to form a second protective film on a magnet body including a rare-earth element with a first protective film including nickel in between through electroplating, as recited in claim 18, this limitation is not a component of the plating bath, and thus, fails to distinguish the plating bath from the prior art.

Since JP '930 teaches all of the limitations recited in the instant claims, the reference is deemed to be anticipatory.

II. Claim **22** is rejected under 35 U.S.C. 102(b) as being anticipated by **JP 50-118930** ('930).

JP '930 teaches a plating bath, comprising:

- (a) nickel ions (= from NiSO_4);
- (b) at least one kind selected from the group consisting of sulfate ions, chlorine ions, bromine ions, acetate ions and pyrophosphate ions (= from NiCl_2);
- (c) at least one kind selected from the group consisting of sodium ions, potassium ions, lithium ions, magnesium ions and ammonium ions (= from 1,5-naphthalenedisulphonic acid Na salt);

(d) at least one kind selected from the group consisting of borate ions and ammonium ions (= from H_3BO_3); and

(e) an organic sulfur compound (= a S-containing organic brightener = m-sulphobenzoic acid, 1,5-naphthalenedisulphonic acid Na salt and 1,4-diethoxy-2-butynesulphonate) [abstract],

wherein the conductivity of the plating bath is 80 mS/cm or over (*inherent*).

Since JP '930 teaches all of the limitations recited in the instant claims, the reference is deemed to be anticipatory.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Method

I. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hamamura et al.** (US Patent No. 4,959,273) in combination with **Lowenheim** ("Electroplating", © 1978, pp. 212-213) and **Du Rose et al.** (US Patent No. 3,183,067).

Hamamura teaches a method of manufacturing a rare-earth magnet, comprising the steps of:

(a) forming a first protective film including nickel (= an electrolytic plating (primary plating)) on a magnet body including a rare-earth element (= a Nd-Dy-B-Fe type permanent magnet) [col. 12, lines 45-47] through electroplating with a first plating bath including:

- (i) a nickel source (= nickel sulfate),
- (ii) a conductive salt (= nickel chloride) and
- (iii) a pH stabilizer (= boric acid) [col. 9, lines 48-58; and col. 12, lines 50-57]; and

(b) forming a second protective film including nickel (= a Ni plating layer) on the first protective film (col. 12, lines 47-50).

The first plating bath including at least one kind selected from the group consisting of nickel sulfate, nickel chlorides, nickel bromides, nickel acetate and nickel pyrophosphate as the nickel source is used (= nickel sulfate) [col. 9, lines 48-58; and col. 12, Comparative Example 3].

The first plating bath including at least one kind selected from the group consisting of boric acid, ammonium borate, sodium borate, potassium borate, lithium borate, magnesium borate and ammonia as the pH stabilizer is used (= boric acid) [col. 9, lines 48-58; and col. 12, Comparative Example 3].

The second protective film is formed through electroplating with a second plating bath including a nickel source (= nickel sulfate), a conductive salt (= nickel chloride), and a pH stabilizer (= boric acid) [col. 9, lines 48-58; and col. 12, Comparative Example

3].

The second plating bath including at least one kind selected from the group consisting of nickel sulfate, nickel chlorides, nickel bromides, nickel acetate and nickel pyrophosphate as the nickel source is used (= nickel sulfate) [col. 9, lines 48-58; and col. 12, Comparative Example 3].

The second plating bath including at least one kind selected from the group consisting of boric acid, ammonium borate, sodium borate, potassium borate, lithium borate, magnesium borate and ammonia as the pH stabilizer is used (= boric acid) [col. 9, lines 48-58; and col. 12, Comparative Example 3].

The method of Hamamura differs from the instant invention because Hamamura does not disclose the following:

a. Wherein the first plating bath has a concentration of the nickel source of 0.3 mol/l to 0.7 mol/l on a nickel atom basis and a conductivity of 80 mS/cm or over, as recited in claim 1.

Hamamura teaches a 240 g/l of nickel sulfate (col. 9, lines 51-52).

Like Hamamura, **Lowenheim** teaches a Watts nickel bath (pages 212-213). Lowenheim teaches that in a Watts nickel bath, the concentration of the nickel sulfate ranges from 225-375 g/l, the molarity of nickel sulfate ranges from 0.86-1.43 and the current density ranges from 250-1000 A/m² (page 213, Table 12-14).

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to have modified the concentration of the nickel source described by Hamamura with wherein the first plating bath has a concentration of the nickel source of 0.3 mol/l to 0.7 mol/l on a nickel atom basis because it has been held that changes in temperature, concentration or both, is not a patentable modification; however, such changes may impart patentability to a process if the ranges claimed produce new and unexpected results which are different in kind and not merely in degree from results of the prior art, such ranges are termed "critical" ranges and Applicant has the burden of proving such criticality; even though Applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within capabilities of one skilled in the art; more particularly, where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimum or workable ranges by routine experimentation. *In re Aller*, 220 F2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) and MPEP § 2144.05.

Furthermore, no significance is seen between Applicants' 0.7 mol/l and Lowenheim's 0.86 mol/l.

As to a conductivity of 80 mS/cm or over, Hamamura teaches a Watts nickel bath (col. 9, lines 48-58). Like Hamamura, Lowenheim teaches a Watts nickel bath (pages 212-213). Lowenheim teaches that in a Watts nickel bath, the current density ranges from 250-1000 A/m² (page 213, Table 12-14). Hamamura and Lowenheim disclose a first plating bath in a similar manner as instantly claimed. There does not appear to be any composition limitations set forth in the instant claims to distinguish the first plating

bath from the prior art. Therefore, it would have been within ordinary skill in the art to expect that the first plating bath disclosed by Hamamura has a conductivity of 80 mS/cm or over.

b. Wherein the second protective film includes sulfur, as recited in claim 1.

c. Wherein the second plating bath includes an organic sulfur compound, and has a conductivity of 80 mS/cm or over, as recited in claim 5.

Hamamura teaches a duplex nickel coating (col. 12, Comparative Example 3; and col. 14, Table 2).

Like Hamamura, **Du Rose** teaches a duplex nickel coating (col. 1, lines 25-34). Du Rose has discovered that uniformly corrosion resistant duplex nickel coated articles may be obtained by controlling the amounts of sulfur contained in both of the nickel coatings making up the duplex deposit (col. 1, line 48 to col. 2, line 20). The first or underlying layer of nickel will be deposited from a solution, Watts or otherwise, which contain a low concentration of sulfo-oxygen control agent and no brightener. The second or top layer of nickel will be from a solution which contains a normal to high concentration of carrier plus a brightener (col. 2, lines 20-28). The brightener is an organic sulfur compound (col. 3, line 1 to col. 5, line 43).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the second protective film described by Hamamura with wherein the second protective film includes sulfur; and wherein the

second plating bath includes an organic sulfur compound because this would have improved the corrosion protection of the deposit as taught by Du Rose (col. 1, line 25 to col. 2, line 6).

As to a conductivity of 80 mS/cm or over, Hamamura teaches a Watts nickel bath (col. 9, lines 48-58). Like Hamamura, Lowenheim teaches a Watts nickel bath (pages 212-213). Lowenheim teaches that in a Watts nickel bath, the current density ranges from 250-1000 A/m² (page 213, Table 12-14). Hamamura and Lowenheim disclose a second plating bath in a similar manner as instantly claimed. There does not appear to be any composition limitations set forth in the instant claims to distinguish the second plating bath from the prior art. Therefore, it would have been within ordinary skill in the art to expect that the second plating bath disclosed by Hamamura has a conductivity of 80 mS/cm or over.

d. Wherein the first plating bath including at least one kind selected from the group consisting of ammonium sulfate, sodium sulfate, potassium sulfate, lithium sulfate, magnesium sulfate, ammonium chloride, sodium chloride, potassium chloride, lithium chloride, magnesium chloride, ammonium bromide, sodium bromide, potassium bromide, lithium bromide and magnesium bromide as the conductive salt is used, as recited in claim 3.

e. Wherein the second plating bath including at least one kind selected from the group consisting of ammonium sulfate, sodium sulfate, potassium sulfate, lithium

sulfate, magnesium sulfate, ammonium chloride, sodium chloride, potassium chloride, lithium chloride, magnesium chloride, ammonium bromide, sodium bromide, potassium bromide, lithium bromide and magnesium bromide as the conductive salt is used, as recited in claim 7.

Hamamura teaches nickel chloride (col. 9, line 52).

Lowenheim teaches that the chloride ion prevents anode passivity, increases the conductivity of the bath and improves throwing power. Nickel chloride is used, although other chlorides would have served this function, such as sodium, potassium, and ammonium (page 212, lines 23-30).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the first and second plating baths described by Hamamura with wherein the first and second plating baths include at least one kind selected from the group consisting of ammonium sulfate, sodium sulfate, potassium sulfate, lithium sulfate, magnesium sulfate, ammonium chloride, sodium chloride, potassium chloride, lithium chloride, magnesium chloride, ammonium bromide, sodium bromide, potassium bromide, lithium bromide and magnesium bromide as the conductive salt because sodium chloride, potassium chloride, and ammonium chloride would have been functionally equivalent to nickel chloride as taught by Lowenheim (page 212, lines 23-30).

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc.*

V. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. Denied*, 469 U.S. 851 (1984). In addition, a known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use, see *In re Gurley*, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994). Further, a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art, including nonpreferred embodiments, see *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), *cert. denied*, 493 U.S. 975 (1989). See MPEP § 2141.02, MPEP 2145X.D.1 and MPEP § 2123.

II. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hamamura et al.** (US Patent No. 4,959,273) in combination with **Lowenheim** ("Electroplating", © 1978, pp. 212-213) and **Du Rose et al.** (US Patent No. 3,183,067).

Hamamura teaches a method of manufacturing a rare-earth magnet, comprising the steps of:

(a) forming a first protective film including nickel (= an electrolytic plating (primary plating)) on a magnet body including a rare-earth element (= a Nd-Dy-B-Fe type permanent magnet) [col. 12, lines 45-47] through electroplating with a first plating bath including:

- (i) nickel ions (= from nickel sulfate),
- (ii) at least one kind selected from the group consisting of sulfate ions,

chlorine ions, bromine ions, acetate ions and pyrophosphate ions (= from nickel sulfate), and

(ii) at least one kind selected from the group consisting of borate ions and ammonium ions (= from boric acid) [col. 9, lines 48-58; and col. 12, lines 50-57]; and

(b) forming a second protective film including nickel (= a Ni plating layer) on the first protective film (col. 12, lines 47-50).

The second protective film is formed through electroplating with a second plating bath including nickel ions (= from nickel sulfate), at least one kind selected from the group consisting of sulfate ions, chlorine ions, bromine ions, acetate ions and pyrophosphate ions (= from nickel sulfate), at least one kind selected from the group consisting of borate ions and ammonium ions (= from boric acid) [col. 9, lines 48-58; and col. 12, Comparative Example 3].

The method of Hamamura differs from the instant invention because Hamamura does not disclose the following:

a. Wherein the first plating bath includes 0.3 mol/l to 0.7 mol/l of nickel ions, as recited in claim 9.

Hamamura teaches a 240 g/l of nickel sulfate (col. 9, lines 51-52).

Like Hamamura, **Lowenheim** teaches a Watts nickel bath (pages 212-213).

Lowenheim teaches that in a Watts nickel bath, the concentration of the nickel sulfate

ranges from 225-375 g/l, the molarity of nickel sulfate ranges from 0.86-1.43 and the current density ranges from 250-1000 A/m² (page 213, Table 12-14).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the first plating bath described by Hamamura with wherein the first plating bath includes 0.3 mol/l to 0.7 mol/l of nickel ions because it has been held that changes in temperature, concentration or both, is not a patentable modification; however, such changes may impart patentability to a process if the ranges claimed produce new and unexpected results which are different in kind and not merely in degree from results of the prior art, such ranges are termed "critical" ranges and Applicant has the burden of proving such criticality; even though Applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within capabilities of one skilled in the art; more particularly, where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimum or workable ranges by routine experimentation. *In re Aller*, 220 F2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) and MPEP § 2144.05.

Furthermore, no significance is seen between Applicants' 0.7 mol/l and Lowenheim's 0.86 mol/l.

b. Wherein the first plating bath includes at least one kind selected from the group consisting of sodium ions, potassium ions, lithium ions, magnesium ions and ammonium ions, as recited in claim 9.

c. Wherein the second plating bath includes at least one kind selected from the group consisting of sodium ions, potassium ions, lithium ions, magnesium ions and ammonium ions, as recited in claim 10.

Hamamura teaches nickel chloride (col. 9, line 52).

Lowenheim teaches that the chloride ion prevents anode passivity, increases the conductivity of the bath and improves throwing power. Nickel chloride is used, although other chlorides would have served this function, such as sodium, potassium, and ammonium (page 212, lines 23-30).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the first and second plating baths described by Hamamura with wherein the first plating bath includes at least one kind selected from the group consisting of sodium ions, potassium ions, lithium ions, magnesium ions and ammonium ions; and wherein the second plating bath includes at least one kind selected from the group consisting of sodium ions, potassium ions, lithium ions, magnesium ions and ammonium ions because sodium chloride, potassium chloride, and ammonium chloride would have been functionally equivalent to nickel chloride as taught by Lowenheim (page 212, lines 23-30).

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. V. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. Denied*, 469 U.S. 851 (1984). In addition, a known or obvious composition does not become patentable

simply because it has been described as somewhat inferior to some other product for the same use, see *In re Gurley*, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994). Further, a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art, including nonpreferred embodiments, see *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), *cert. denied*, 493 U.S. 975 (1989). See MPEP § 2141.02, MPEP 2145X.D.1 and MPEP § 2123.

d. Wherein the first plating bath has a conductivity of 80 mS/cm or over, as recited in claim 9.

Hamamura teaches a Watts nickel bath (col. 9, lines 48-58).

Like Hamamura, Lowenheim teaches a Watts nickel bath (pages 212-213). Lowenheim teaches that in a Watts nickel bath, the current density ranges from 250-1000 A/m² (page 213, Table 12-14).

Hamamura and Lowenheim disclose a first plating bath in a similar manner as instantly claimed. There does not appear to be any composition limitations set forth in the instant claims to distinguish the first plating bath from the prior art. Therefore, it would have been within ordinary skill in the art to expect that the first plating bath disclosed by Hamamura has a conductivity of 80 mS/cm or over.

e. Wherein the second plating bath includes an organic sulfur compound,

and having a conductivity of 80 mS/cm or over, as recited claim 10.

Hamamura teaches a duplex nickel coating (col. 12, Comparative Example 3; and col. 14, Table 2).

Like Hamamura, **Du Rose** teaches a duplex nickel coating (col. 1, lines 25-34). Du Rose has discovered that uniformly corrosion resistant duplex nickel coated articles may be obtained by controlling the amounts of sulfur contained in both of the nickel coatings making up the duplex deposit (col. 1, line 48 to col. 2, line 20). The first or underlying layer of nickel will be deposited from a solution, Watts or otherwise, which contain a low concentration of sulfo-oxygen control agent and no brightener. The second or top layer of nickel will be from a solution which contains a normal to high concentration of carrier plus a brightener (col. 2, lines 20-28). The brightener is an organic sulfur compound (col. 3, line 1 to col. 5, line 43).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the second plating bath described by Hamamura with wherein the second plating bath includes an organic sulfur compound because this would have improved the corrosion protection of the deposit as taught by Du Rose (col. 1, line 25 to col. 2, line 6).

As to a conductivity of 80 mS/cm or over, Hamamura teaches a Watts nickel bath (col. 9, lines 48-58). Like Hamamura, Lowenheim teaches a Watts nickel bath (pages 212-213). Lowenheim teaches that in a Watts nickel bath, the current density ranges from 250-1000 A/m² (page 213, Table 12-14). Hamamura and Lowenheim disclose a

second plating bath in a similar manner as instantly claimed. There does not appear to be any composition limitations set forth in the instant claims to distinguish the second plating bath from the prior art. Therefore, it would have been within ordinary skill in the art to expect that the second plating bath disclosed by Hamamura has a conductivity of 80 mS/cm or over.

Bath

III. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hamamura et al.** (US Patent No. 4,959,273) in combination with **Lowenheim** ("Electroplating", © 1978, pp. 212-213).

Hamamura and Lowenheim are as applied for reasons as discussed above and incorporated herein.

Hamamura and Lowenheim also teach a plating bath.

As to wherein the plating bath is used to form a protective film on a magnet body including a rare-earth element through electroplating, as recited in claim 12, this limitation is not a component of the plating bath, and thus, fails to distinguish the plating bath from the prior art.

IV. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Hamamura et al.** (US Patent No. 4,959,273) in combination with **Lowenheim**

("Electroplating", © 1978, pp. 212-213).

Hamamura and Lowenheim are as applied for reasons as discussed above and incorporated herein.

Hamamura and Lowenheim also teach a plating bath.

V. Claim **20** is rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 50-118930 ('930)** as applied to claims 17-19 and 21 above, and further in view of **Lowenheim** ("Electroplating", © 1978, pp. 212-213).

JP '930 is as applied for the reasons as discussed above and incorporated herein.

The method of JP '930 differs from the instant invention because JP '930 does not disclose wherein as the conductive salt, at least one kind selected from the group consisting of ammonium sulfate, sodium sulfate, potassium sulfate, lithium sulfate, magnesium sulfate, ammonium chloride, sodium chloride, potassium chloride, lithium chloride, magnesium chloride, ammonium bromide, sodium bromide, potassium bromide, lithium bromide and magnesium bromide is included, as recited in claim 20.

Hamamura teaches nickel chloride (col. 9, line 52).

Lowenheim teaches that the chloride ion prevents anode passivity, increases the conductivity of the bath and improves throwing power. Nickel chloride is used, although other chlorides would have served this function, such as sodium, potassium, and ammonium (page 212, lines 23-30).

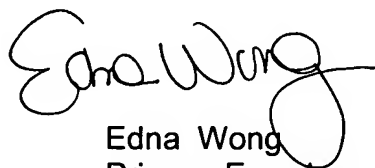
It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the conductive salt described by Hamamura with wherein as the conductive salt, at least one kind selected from the group consisting of ammonium sulfate, sodium sulfate, potassium sulfate, lithium sulfate, magnesium sulfate, ammonium chloride, sodium chloride, potassium chloride, lithium chloride, magnesium chloride, ammonium bromide, sodium bromide, potassium bromide, lithium bromide and magnesium bromide is included because sodium chloride, potassium chloride, and ammonium chloride would have been functionally equivalent to nickel chloride as taught by Lowenheim (page 212, lines 23-30).

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. V. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. Denied*, 469 U.S. 851 (1984). In addition, a known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use, see *In re Gurley*, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994). Further, a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art, including nonpreferred embodiments, see *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), *cert. denied*, 493 U.S. 975 (1989). See MPEP § 2141.02, MPEP 2145X.D.1 and MPEP § 2123.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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EW
February 3, 2005